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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/890,613	07/31/2001	Michael Bischof	4191/PCT	4612

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EXAMINER	
EASTHOM, KARL D	

ART UNIT	PAPER NUMBER
2832	

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/890,613	BISCHOF ET AL.	
	Examiner	Art Unit	
	Karl D Easthom	2832	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *52-68* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *52-68* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 65-68 are rejected under 35 U.S.C. 102(b) as being anticipated by Kitihara '943. Kitihara discloses the claimed invention at Fig. 4, with gas function layer 14 supported by sensor carrier 10 or 12, and meandering heater 11 having some diminishing amplitudes toward the tip end. In claim 66, the conductor path is 22,23. In claim 57, 14 is secured to one side of 12, with the heater secured to the opposite side.

3. Claims 65-66 and 68 are rejected under 35 U.S.C. 102(b) as being anticipated by Hagan et al. Hagan discloses the claimed invention at the sole figure, with gas function layer 13 supported by sensor carrier 3, and meandering heater 14 having diminishing amplitudes toward the tip end. In claim 66, the conductor path shown attached thereto.. In claim 57, 14 is secured to one side – the middle side, , with the heater secured to the opposite side – the outside. For claim 68, the two different groups are groups defined by, and including, a larger and a smaller amplitude section.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 52-56 and 65-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 19523301 in view of Kitahara '943. DE '301 discloses the claimed invention as noted below, except the meander sections, the location of contact points and the gas function layer, and the diminishing amplitudes and varying widths. It is not clear if the gas function sensor layer is disclosed absent a translation; however, same is an obvious means where function layer 14 is on the opposite side of the substrate of 12 from substrate 12 having meandering heater 12 at Fig. 4 for the purpose of controlling fuel mixture – see the abstract. It is also noted that applicant does not argue that the gas function layer is lacking so it is assumed in the DE document at some location. Hence, the gas function layer meets claims 54, 56, 67 and like claims, and the contact point of DE '301, for claims 54, 61-62, would be under same since the function layer of Kitihara is all along the device. The meander layer 11 at Fig. 4 of Kitahara is employed to control the gas fuel mixture so that it would have been obvious to form such a meander layer to more uniformly provide heat as is well known in the arts and as admitted at pages 3-5 in applicant's specification. Fig. 4 of Kitihara shows a variation in amplitudes depending on spacing, that is adjacent sections have different heights depending on where they are – and diminishing as some of them as claimed. Some of the amplitudes diminish toward the tip end, meeting claims 52, 65 and 68, and like claims. For claims 53 and like claims, some of the different sections have different widths, where it would be impossible to control same exactly. The remaining claimed invention is disclosed at Figs. 1-2 of DE '301, and indicated by applicant's remarks regarding same in his specification, with the substrate either of 10 or 12, the gas sensor at the tip end having heater H, power supply conductors Hl1 and Hl2, two temperature sensing paths Ml1, Ml2 with contact sections attached to the heater H, the contact

section connected at the series connection between RH1 and R(l), and between RH2 and R(l), the heater having at least 6 different heating sections, three in series, forming the three legs of the U shape, and there are at least six different branches that vary as distance from the tip end forming the two U-shapes, such sections "compensate" where the substrate has different heat dissipations, and the temperature variation is minimized as a matter of degree.

6. Claims 57-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 19523301 in view of Kojima et al. '591 DE '301 discloses the claimed invention as noted above, except the diminishing length and increasing width of claim 57, meandering heater of claim 61, varying widths of claim 63, and the gas function layer and contact point locations for the remaining claims.. For claims 57 and 63, Fig. 8A of '591 discloses increasing width toward the tip, and decreasing length, where the 3mm length is less than the 5mm length. For claim 61, see Fig. 5. Or for claim 57, see Fig. 3, Fig. 6 (see the varying widths of 25 or 32 with the function layer 34) and the abstract of Kojima disclose such an arrangement for the purpose of forming a uniform heating arrangement which would have been obvious for that reason. Regarding the gas sensor layer, see also layer 57 at Fig. 15, attached to the opposite side of substrate 55 from heater 63, known as disclosed in Kojima as a means to sense and control gas. This whole layer 57 can be considered part of the gas function layer, so that it would have been obvious or implicit that the connections would be under same, meeting claims 58-60 and 64. Or, for the gas function layer, see Fig. 18a, with same on the opposite side of the substrate 102, meeting claims 58 and 62, as an obvious prior art set up.. The contact point of claims 59 60 is noted above as disclosed in DE '301.

7. The claims previously indicated as allowed are not allowed, contrary to the reasons earlier noted, primarily because while they were indicated as interpreted such that each amplitude of said meandering heater diminishes toward the tip end, applicant's recent arguments of1/28/04 at page 19 apparently disagree with that interpretation, such that applicant reads the claims such that only certain amplitude sections need to diminish to meet the claims. The examiner had indicated allowability on the premise that each and every amplitude must diminish toward the tip, but applicant's remarks indicate his claims read on the prior art as noted above, since applicant argues his claims require only that certain amplitudes diminish toward the tip.

8. The arguments submitted 1/28/04 have been considered in full but are persuasive only as to the removed rejections. The argument for claim 61 that the heater of DE '301 has no series resistors is not correct where they are identified above as the three series legs in either of the two parallel U-shaped branches H at Fig. 1. As to the detector electrodes, those would be connected as claimed in DE '301 by making those heater sections meandering as suggested by the combination. As to claim 57, the argument that it contains the limitations indicated earlier to be allowable, as containing all limitations of claims 32, 37 and 38 is not correct for reasons noted above, where the examiner thought the claim had meandering sections, thus this rejection is not made final. It is noted that if applicant is aware of the gas function layer in DE '301, or its location with respect to the heater layer as disclosed in that document, he would point that out under his duty of disclosure/candor should that become a more prominent issue.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl D Easthom whose telephone number is (272) 571-1989. The examiner can normally be reached on M-Th, 5:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on (272) 571-1989. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karl D Easthom
Primary Examiner
Art Unit 2832

KDE